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ACCOMPLISHMENT PLAN. REGION VIII. CHEYENNE RIVER BASIN AREA

ENVIRONMENTAL PROTECTION AGENCY

MARCH 1972

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ENVIRONMENTAL PROTECTION AGENCY

ROCKY MOUNTAIN-PRAIRIE REGION

ACCOMPLISHMENT PLAN

REGION VIII

CHEYENNE RIVER BASIN AREA

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Significant pollution problems are found in the Cheyenne River Area. Municipal and industrial discharges threaten continued use of Lake Oahe and other rivers in the Cheyene River Basin as Major sources of water supply and for water-related agricultural and recreation activities in the area.

This Accomplishment Plan addresses the needs of the Cheyenne River Basin Area.

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ACCOMPLISHMENT PLAN

REGION VIII

CHEYENNE RIVER BASIN AREA

MARCH 1972

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SECTION 1

GENERAL

The Cheyenne River Basin Area has been selected as one of Region VIII's high priority areas for an abatement and control program for Fiscal Years 1972 and 1973. Significant pollution problems are found in the Cheyenne River Area. Municipal and industrial discharges threaten continued use of Lake Oahe and other rivers in the Cheyenne River Basin as major sources of water supply and for water-related agricultural and recreation activities in the area.

This Accomplishment Plan addresses the needs of the Cheyenne River Basin Area. Specific tasks and plans of accomplishment have been developed to deal with the various air and water quality objectives of Region VIII for this area.

SECTION 2

BROAD OBJECTIVES

2.1 Water Quality

Improve quality of Lake Oahe and rivers in the Cheyenne River Basin by abatement and control of water pollution caused by industrial and municipal wastes, specifically, those in the Lead-Deadwood area. Eliminate industrial discharges of 2735 tons per day of suspended solids into Whitewood Creek and the Belle Fourche/Cheyenne River systems by October 1, 1974. Secondary treatment will be required of the municipalities of Lead-Deadwood by October 1, 1974.

Determine the magnitude of pollution from buried mill tailings along Whitewood Creek, the Belle Fourche River, and the Cheyenne River. If rates of release of metals and toxic elements are in violation of water quality standards, plans for stabilization, including possible enforcement action, will be initiated. Target date for completion: October 1, 1972.

Determine amount of mercury contamination in fish in Oahe Reservoir. Target date for completion: December 1, 1972.

Set up monitoring stations near Edgemont to determine if excessive radiation is present. Monitor for six months to determine if enforcement action is necessary. Target date for completion: October 1, 1972.

By means of the existing 3(c) grant with the BHCSD develop a plan to control basin-wide sediment, nutrient, and bacteria problems associated with: agriculture; recreation and second homesite development; mining activities; and construction and related disruption.

2.2 Air Quality

Reduce emissions caused by Tepee burners by ensuring that the compliance schedule set forth in the South Dakota Air Implementation plan is met.

SECTION 3

SPECIFIC TASKS AND ACCOMPLISHMENTS FOR
WATER QUALITY IMPROVEMENT

3.1 Lead-Deadwood Facility Construction Grant

Purpose

To expedite construction and completion of waste treatment facilities for the Lead - Deadwood Sanitary District at the Centennial Prairie Site.

Situation

Whitewood Creek, the Belle Fourche River and the Cheyenne River in the Black Hills area of South Dakota are grossly polluted by mine tailings and process wastes from the Homestake Mining Company and municipal wastes from the cities of Lead and Deadwood. The Lead - Deadwood Sanitary District was organized to develop a sewerage system which would provide treatment of the combined municipal - industrial waste. The District's Engineers have recommended the construction of a waste stabilization pond which they claim will provide for adequate treatment and stabilization of the combined wastewater as well as storage of tailings from the gold mining operations at a site known as the Centennial Prairie site. An application for $1,790,000 in Federal assistance under Section 8 of the Federal Water Pollution Control Act was filed with the Environmental Protection Agency on April 12, 1971.

Serious objections to the project were raised by landowners in the valley downstream from the site. Because of this and concern for

other potential environmental hazards associated with the project, a draft environmental statement was prepared in December 1971, pursuant to Section 102 (2) (c) of the National Environmental Policy Act of 1969. Subsequently, on December 21 and 22, a public hearing was held at Deadwood, South Dakota, by EPA pursuant to the same act.

A final environmental impact statement has now been issued by the Regional Office. Action on the grant application will continue to be delayed until a decision is reached on the environmental review of the project and until the final environmental impact statement is completed and its recommendations are known. It will then be known if the project has been rejected or if it will be authorized to proceed. Assuming that the environmental review process will result in the authorization to proceed with the project, it will then be necessary to expedite construction as soon as possible consistent with the required administrative and technical reviews; however, it will not be possible to meet the schedule set forth by the Western South Dakota Enforcement Conference of October 19 - 20, 1971. The delay is necessary to fully evaluate environmental considerations.

Approach

Consideration will be given to the following measures for expediting construction and completion of the project:

1. Environmental impact question will have to be resolved.

2. Tender a grant offer conditioned on completion of the project no later than 19 months after the start of construction. This is the

indicated time required for construction in the application.

3. Schedule several pre-design conferences with the consulting engineers to reduce the time required for review and approval of the plans and specifications.

4. Work out a memorandum of agreement with the Bureau of Reclamation for their assistance in the technical review of the final plans and specifications for the project. Special assistance is needed in order to give an adequate review of the construction features of a 98 foot high dam and an 8 mile pipeline carrying mine tailings with a population equivalent load (based on S. S.) of 30 million people.

Special technical assistance of this kind will speed review of the plans and specifications and permit advertisement for bids at an earlier date.

5. Solicit a companion review of the plans and specifications by the Enforcement Division to insure compliance with Enforcement Conference recommendations and requirements.

6. Investigate possible reduction of the time necessary for construction by asking bidders to submit alternate bids based on different proscribed completion dates and comparing the additional costs against the benefits that would be derived.

Interrelationships

The Lead - Deadwood Sanitary District project has been endorsed by the conferees of the Western South Dakota Enforcement Conference. The District has been directed to comply with the following interim dates:

By February 1, 1972	- Plans to be completed
By April 15, 1972	- Contract to be awarded
By October 1, 1973	- Construction to be completed

The District will not authorize preparation of final plans and specifications until the project passes through the environmental impact review process and a grant offer has been made. Consequently, compliance with this schedule cannot be met because of the delays involved in preparing an environmental impact statement and conducting a formal environmental hearing in connection with the review process. The conferees will be asked to adopt a new schedule. Any schedule developed as part of this plan will have to be reconsidered if a different schedule is required by the conferees.

There is also an interrelationship between the water quality standards implementation schedule and any schedule developed as part of this plan. The water quality standards call for the plant to be constructed and placed in operation by November 1, 1973.

Plans and specifications for construction grants projects must first be approved by the State Water Pollution Control Agency before approval by EPA.

Milestones

The following milestones represent the best estimates that can be made at this time for implementation of the project and placing it into operation.

April 15, 1972	- Complete environmental review procedure.
April 17, 1972	- Tender grant offer.
May 1, 1972	- Meet with the Bureau of Reclamation to discuss future role and planned activities.
June 1, 1972	- Complete Memorandum of Agreement with the Bureau of Reclamation.
November 15, 1972	- Complete plans and specifications.
January 15, 1973	- State and Federal approval of plans and specifications.
March 1, 1973	- Award Contract.
October 1, 1974	- Complete construction and place project in operation.

Project Manager: Samuel Berman, Municipal Wastewater Treatment Branch.

3.2 Process Twenty Permits.

Purpose

To reduce wastewater flows and concentrations through the implementation of the Permit Program by setting special conditions in each of twenty permits that will require industries to meet water quality standards and to discharge effluents that have received no less than the equivalent of secondary treatment.

Approach

The work will be carried out principally by the Permits Branch of the Enforcement Division, but with the aid of the Surveillance and Analysis Division, Management Division (Computer Branch), and Air and Water Programs Division (Planning Branch).

Inspections in the Cheyenne River Basin will be carried out by the Surveillance and Analysis Division and EPA's State Assignees and coordinated with the South Dakota Department of Health, Wyoming Department of Health and appropriate county health departments.

Management Division support is planned for such items as updating and implementing computer programs, key punching data, etc. Water quality standards, metropolitan planning outputs, and systems analysis work are expected from the Air and Water Programs Division.

Milestones

The following milestones constitute the Permits Branch's plan of action that will, in effect, reduce the industrial waste discharges to the Cheyenne River and aid in upgrading the quality of the water.

By September 1, 1972, inspections in the Cheyenne River Basin for the purpose of identifying uninformed or noncomplying industries completed.

By October 1, 1972, completed applications obtained for all significant industries.

By November 1, 1972, requests for State certification completed for all significant industries.

By February 1, 1973, interim effluent monitoring plan developed for the major industries; plan finalized on April 1, 1973.

By March 1, 1973, technical reviews of applications from significant industries in Cheyenne River Basin completed; special permit conditions set to meet water quality standards, secondary levels of treatment, planning and institutional requirements, and water quality criteria set forth by the Bureau of Sport Fisheries and Wildlife and coordinated with State departments of health; recommendations to Corps of Engineers completed.

Unresolved Policy Issues

In a recent court decision, a Federal judge concluded that permits could not be issued for industrial wastes discharged to non-navigable streams and that discharges to navigable streams require an environmental impact statement prior to the issuance of each permit. Both facets of this decision could have far-reaching impacts on the Cheyenne River.

Under existing policy, the Permit Program has been constrained with regards to its applicability to feedlot operations. Only those feedlots having more than 1,000 animal units and having man-made point discharges of wastes presently fall under the Permit Program. The number of animal units criteria in this policy removes about 90 percent of the Basin's feedlots from the Refuse Act authority and the point discharge stipulation removes most of the remaining large operations that have diffuse discharges and cause water quality problems in the Cheyenne Basin. South Dakota has a permit program which addresses feedlots of 500 units.

3.3 3(c) Grant

Purpose

To ensure the development of a Water Quality Management Plan for the protection of water resources in the Cheyenne River Basin, and to supplement the Black Hill Conservancy Sub-District (BHCSD) Section 3(c) planning grant to achieve allied regional objectives for the basin.

Situation

A Section 3(c) grant was awarded to the BHCSD, October 1, 1970, for a three-year period ending October 1, 1973. This project is designed to meet the requirements of 18CFR601 for the Basin plan. The major water quality problems result from agricultural practices; recreation and second homesite developments; mining activities; and construction and related land disruption activities. Sediment, nutrients, and bacteria are the quality parameters of greatest concern as they relate adversely to the major and increasing recreational use of impoundments in the Black Hills area. The grantee has submitted a project amendment proposal which is undergoing Regional review. This proposal has as its objective development of methods to control pollution caused by rural residential development in a mountain environment.

Interrelationships

The Lead - Deadwood Homestake Mine problem is within the project area and is necessarily related to the project. However, due to

the amount of effort programmed to solve the mine problem, it has not been addressed in any detail by the 3(c) project. The project relates quite strongly to the Sediment Control Act proposed by EPA.

Milestones

By April 20, 1972	- Assign Region Liaison Officer
By April 24, 1972	- Act on grant amendment proposal
By May 15, 1972	- Regional personnel (Task Force) meet with grantee to develop supplemental needs including the development of a Sediment Control Conference.

Provide continuous Regional Office monitoring of project until its completion.

Unresolved Policy

The policy of EPA in Sediment Control has not been defined. The proposed Sediment Control Act, Title II of the Water Pollution Control Act delineates Federal/State responsibilities for Sediment Control.

Project Manager: Patrick J. Godsil, Chief, Planning Branch, Air and Water Programs Division

3.4 Analysis of Pollution from Tailings Piles

Purpose

To ascertain and document the location and composition of buried tailings materials, including abandoned tailings piles, along Whitewood Creek, the Belle Fourche River, and the Cheyenne River and the rates of release of heavy metals and toxic elements.

Approach

Suspected mill tailings deposits have been determined from aerial photographs by the NFICD. The Surveillance and Analysis Division will take limited field samples at the sites. Surveillance and Analysis, Technical Support Branch, will analyze the samples, including leaching for heavy metals and toxic elements. The rate of release of any of these elements will be determined. A report will be prepared documenting samples and amounts released. The results may form the basis for enforcement action against the source to stabilize the tailings deposits.

Milestones

By April 1, 1972	- Collection of ground samples by Surveillance and Analysis Division.
By May 1, 1972	- Laboratory analysis of samples.
By June 1, 1972	- Completion of report on environmental impact on river system.
By July 1, 1972	- Enforcement action, if required.

Project Manager: John Hardaway, Surveillance and Analysis Division.

3.5 Well Water Study

Purpose

To determine zinc, copper, mercury, selenium, cyanide, and arsenic concentrations in wells in the Cheyenne Basin and to ascertain whether these sources are acceptable for domestic or agricultural water supply uses.

Approach

Representatives of South Dakota and the Surveillance and Analysis Division of Region VIII met and decided to take well samples at approximately 20 different locations used for domestic water supply. Service water sampling will also be done by the Surveillance and Analysis Division. Analysis of each set of samples will be completed one month after samples are taken. An initial report will be submitted April 30, 1972, to determine if these sources are acceptable for domestic or agricultural water supply. Such information may provide the basis for future enforcement action if pending legislation extending EPA jurisdiction over groundwater is passed and signed into law.

Milestones

By March 31, 1972	- Sample taken
By April 30, 1972	- Report of first two samples completed
By July 31, 1972	- Sample taken
By October 31, 1972	- Sample taken
By November 31, 1972	- Enforcement action if required

Project Manager: John Hardaway, Surveillance and Analysis Division.

3.6 Mercury Investigation of Oahe Reservoir

Purpose

The principal goal of this plan is to determine levels of mercury accumulated in recreational fish, in order to develop, if necessary, adequate measures to control consumptive use of these fish. It is not intended as a sufficient quality control plan for commercial fishermen using these waterways.

Approach

The State of South Dakota, the Bureau of Sport Fisheries and Wildlife and the Surveillance and Analysis Division, Region VIII, met and arranged a fish sediment sampling plan. Six stations have been set up on the Cheyenne River Branch of Lake Oahe. The Technical Support Branch of Surveillance and Analysis Division will take fish and sediment samples. Two samples will be taken for the spring of 1972, one for the summer and one for the fall. Technical Support Branch will analyze specimens for mercury and trace elements. If a hazard exists, measures will be taken in conjunction with the Enforcement Division for public notification by the State of South Dakota.

Milestones

By April 14, 1972	- First fish and sediment samples taken.
By August 15, 1972	- Summer fish sample taken
By October 15, 1972	- Fall fish sample taken
By December 1, 1972	- Final report

Project Manager: Loys Parrish, Surveillance and Analysis Division

3.7 Radiological Monitoring of Cheyenne River; Vicinity of Edgemont, South Dakota

Purpose of the Plan

Initiate routine monitoring of physical and chemical water quality in Cottonwood Creek and the Cheyenne River in the vicinity of the Mines Development, Inc., uranium mill at Edgemont, South Dakota. Water quality of both streams in the vicinity of the Edgemont mill is impacted by seepage from retention ponds and spent ore solids (sand tailings) which enter the water environment by wind and/or water errosion action on three storage piles.

Monitoring objectives are twofold:

(1) Determine the extremes in chemical (vanadium, molybdenum and iron) and radioactivity concentrations and the annual average radioactivity concentrations at four locations.

Cottonwood Creek

- Upstream from the mill
- At the mouth, confluence with the Cheyenne River

Cheyenne River

- Upstream from the mill
- Downstream from the mill and the confluence with Cottonwood Creek

(2) Monitor the effectiveness of the abatement program requiring the construction of a sealed pond to eliminate seepage and stabilization of the sand tailings piles. Long-term monitoring will show the sustained integrity of the pond against seepage.

Approach

Sampling will be done by a local resident of Edgemont under contract to EPA. Samples will be taken at a frequency of once per week until sufficient data has been obtained to reduce the frequency of collection. Radioactivity (uranium, radium-226, thorium, etc.) analyses will be performed by the Engineering & Sciences Branch, Office of Water Programs, Cincinnati, Ohio, until such time that the radiological capabilities of the Region VIII laboratory become operational. Other analyses will be performed by the Region VIII laboratory.

All aspects of the monitoring program will be transferred to the State of South Dakota as soon as the State has sufficient resources.

Milestones

By March 7, 1972, field investigation to establish specific locations for the monitoring stations.

By May 1, 1972, initiate the sampling program.

By November 1, 1972, enforcement action, if required.

Project Manager: Lester Springer, Surveillance and Analysis

SECTION 4

SPECIFIC TASKS AND ACCOMPLISHMENT PLANS FOR AIR QUALITY IMPROVEMENT

4.1 Tepee Burners

Purpose

Tepee type burners are used extensively in this area and will not meet the emissions standards in the State implementation plan.

Approach

South Dakota has submitted an Implementation Plan for approval. This plan includes new regulations on Tepee burners. Approval by EPA will be on or before May 31, 1972.

Milestones

By May 31, 1972	- Approval of Implementation Plan.
By May 31, 1973	- Follow-up check to determine if compliance schedule is being followed.
By November 30, 1973	- Check on final compliance with standards.

Project Manager: Norm Huey, Air and Water Programs Division

APPENDIX A

MILESTONE CHARTS

	1972														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	73	74	75
Section 3.1 Lead-Deadwood Facility Construction Grant															
Complete environmental review procedure.				X											
Tender grant offer.				X											
Meet with the Bureau of Reclamation to discuss future role and planned activities.					X										
Complete Memorandum of Agreement with the Bureau of Reclamation.						X									
Complete plans and specifications.											X				
State and Federal approval of plans and specifications.													X		
Award Contract													X		
Complete construction and place project in operation.														X	
Section 3.2 Process Twenty Permits															
Inspections in the Cheyenne River Basin for the purpose of identifying uninformed or non-complying industries completed.									X						
Completed applications obtained for all significant industries.										X					
Requests for State certification completed for all significant industries.											X				
Interim effluent monitoring plan developed for the major industries; plan finalized.													X		
Technical reviews of applications from significant industries in Cheyenne River Basin completed; special permit conditions set to meet water quality criteria set forth by the Bureau of Sport Fisheries and Wildlife and coordinated with State departments of health; recommendations to Corps of Engineers completed.													X		
Section 3.3 3(c) Grant															
Assign Region Liaison Officer.				X											
Act on grant amendment proposal.				X											
Regional personnel (Task Force) meet with grantee to develop supplemental needs including the development of a Sediment Control Conference.					X										

	1972												73	74	75
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
Section 3.4 Analysis of Pollution from Tailings Piles															
Collection of ground samples by Surveillance and Analysis Division.				X											
• Laboratory analysis of samples.					X										
Completion of report on environmental impact on river system.						X									
Enforcement action, if required.															
Section 3.5 Well Water Study															
Sample taken			X												
Report of first two samples completed.				X											
Sample taken							X								
Sample taken										X					
Enforcement action if required.											X				
Section 3.6 Mercury Investigation of Dake Reservoir															
First fish and sediment samples taken				X											
Summer fish sample taken								X							
Fall Fish sample taken										X					
Final report												X			
Section 3.7 Radiological Monitoring of Cheyenne River; vicinity of Edgemont, South Dakota.															
Field investigation to establish specific locations for the monitoring stations.			X												
Initiate the sampling program.					X										
Enforcement Action, if required.											X				
Section 4.1 Texas Burners															
Approval of Implementation Plan					X										
Follow-up check to determine if compliance schedule is being followed.					X										
Check on final compliance with standards.											X				